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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,843	03/16/2004	Michael Francis Xavier Gigliotti JR.	130445-1	3108

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GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

EXAMINER

KOEHLER, ROBERT R

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 01/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/801,843

Applicant(s)

GIGLIOTTI ET AL.

Examiner

Robert R. Koehler

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Period for Reply
-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on November 9, 2005 (Amdt., Remarks).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-79 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-79 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

RRK.
1-20-06

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11092005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 2 to 79 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Evaluations of the level of ordinary skill in the art requires consideration of such factors as various prior art approaches, types of problems encountered in the art, rapidity with which innovations are made, sophistication of technology involved, educational background of those actively working in the field, commercial success, and failure of others.

The "person having ordinary skill" in this art has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The evidence of record including the references and/or admissions are considered to reasonably reflect this level of skill.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 2 to 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over WIPO international patent application WO 99/66102 (WO '102) in view of European Patent Application No. 1 054 077 A2 (EP '077).

WO '102 teaches the usage of nickel-titanium intermetallic compounds as coatings on austenitic steel substrates. The NiTi compounds possess excellent cavitation strength and good erosion resistance in various environments. According to WO '102, the NiTi compounds can be plated onto industrial equipment such as water turbine blades. Also, WO '102 states that NiTi compounds have pseudoelastic properties that vary according to the exact composition, microstructure, and temperature of the compound. See line 4 on page 1 to line 18 on page 5 of WO '102. WO '102 differs from the claims in that WO '102 does not provide a diffusion-controlling layer between the substrate surface and an erosion-resistant shape memory alloy layer.

However, EP '077 teaches the usage of an intermediate (barrier) layer between a substrate such as a turbine blade and an outer protective coating wherein the intermediate layer can be selected from a wide variety of metals, nitrides, and oxygen-containing compounds such as silica. See line 56 in column 4 to line 11 in column 5 of EP '077. The Examiner notes that the intermediate (barrier) layer compositions taught by EP '077 perform the same function (prevention of interdiffusion between the protective layer and the substrate) as the diffusion-controlling layer claimed by the applicants.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teaching by WO '102 concerning the formation of a suitable reaction layer between the plating (shape memory alloy) material and the substrate surface during hot pressing (see lines 17 to 21 on page 4 of WO '102) as suggested by the usage of an intermediate (barrier) layer according to EP '077 because a barrier layer provides an improved bond between the outer protective layer and the substrate surface. A person skilled in

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the art of inorganic protective coatings for metal substrates would have been motivated to rely on EP '077 because an alternative bonding layer does not rely on the formation of a suitable reaction layer (as taught in WO '102) and the variety of barrier layer materials still permits diffusion-control between the shape memory alloy layer and the substrate surface.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Robert Koehler whose telephone number is **(571) 272-1536**. The Examiner can normally be reached on Tuesday to Friday from 9:30 AM to 7:00 PM. The Examiner can also be reached on alternate Mondays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Deborah Jones, can be reached on **(571) 272-1535**. The official Fax No. is **(571) 273-8300**, and the After-Final Fax No. is **(571) 273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).



**ROBERT R. KOEHLER
PRIMARY EXAMINER**

**Art Unit 1775
January 20, 2006**